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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,722	06/26/2003	Silas W. Dunsmore	1352-2	6916

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EXAMINER
MYINT, DENNIS Y

ART UNIT	PAPER NUMBER
2162	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	12/19/2006	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

	Application No.	Applicant(s)
Office Action Summary	10/608,722	DUNSMORE ET AL.
	Examiner	Art Unit	
	Dennis Myint	2162	

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>06 November 2006</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-16, 18-27 and 29-57</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-16, 18-27 and 29-57</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>26 June 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

        1.☐ Certified copies of the priority documents have been received.

        2.☐ Certified copies of the priority documents have been received in Application No. _____.

        3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   This communication is responsive to Applicant's Amendment, filed on 06

November 2006.

2.   Claims 1, 23, 29, 51, and 57 are independent claims. As such, claims 1-16, 18-

27 and 29-57 are pending. In the Amendment filed on 06 November 2006, claims 1, 6,

23, 29, 51, 53, and 57 were amended.

Response to Arguments

3.   The applicant's arguments filed on 06 November 2006 have been fully

considered but are not persuasive.

Referring to claim independent claims 1, 23, 29, 51, and 57 (Page 21 of

Applicant's argument), Applicant argued that, referring to the Final Office Action of May

3, 2006, *the Examiner states that "Hensley does not explicitly disclose that said method*

provides relocation of the second root directory (i.e., relocation of a sub-directory) to the

first location" (Page 20 of Applicant's argument). In the same argument, Applicant

stated that *Thus, the combination suggested by the Examiner would include copying*

steps (Page 20 of Applicant's argument).

In response, it is pointed out that the combination of Hensley in view of Maurer III

teaches relocating filed/directories **with copying or without copying**. Applicant is

advised to note various embodiments of Hensley reference. For the feature of relocating

files/directories with coping steps, Maurer III teaches in Paragraph 0115 as noted by the Applicant. Maurer III teaches relocating files/folders without copying steps in Paragraph 0112 as *In the case where the first logical unit is no longer accessible, such as due to disk failure, the storage array can provide access to the copy of the first logical unit by the client **by swapping to the logical unit** accessed by the host. In one embodiment, the client and/or client application is not aware that the first logical unit, e.g., original or source, logical unit is no longer being accessed. If desired, a **restore** can be performed from the copy to the first logical unit and application access to the first logical can be provided after mirror synchronization for the restore is complete.*" Particularly note that Maurer III is teaching swapping logical pointers to files and folders. Therefore, Maurer III teaches the added limitation "*without copying content of the first or second plurality of files*".

Even more, Hensley also teaches said limitation "*without copying content of the first or second plurality of files*" as *Next, the operating system configuration files that were copies to the new emergency directory hierarchy are modified, to replace any references to the original operating system directory structure with references to the new emergency boot directory hierarchy (block 62)* in Paragraph 0023 of Hensley reference. Note that Hensley only teaches relocating files/folders without copying step in contrast to Maurer III reference which teaches both ways.

On Page 20 of Applicant's argument, Applicant argued that *there is no motivatin to combine Maurer III et al. with Hensley et al.*(Page 20 of Applicant's argument, last paragraph). In response to applicant's argument that there is no suggestion to combine

the references, the examiner recognizes that obviousness can only be established by

combining or modifying the teachings of the prior art to produce the claimed invention

where there is some teaching, suggestion, or motivation to do so found either in the

references themselves or in the knowledge generally available to one of ordinary skill in

the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re*

Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, One would have

been motivated to do so in order to *enable to extraction of such logical information in a*

straight-forward non-complex and fast manner so that a surrogate computer could work

with replicated copies in substantially the same manner as the original source computer

that had operated with standard data (Maurer Paragraph 0010).

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art
> are such that the subject matter as a whole would have been obvious at the time the invention was made to
> a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be
> negatived by the manner in which the invention was made.

5.   This application currently names joint inventors. In considering patentability of

the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation

under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

not commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g)

prior art under 35 U.S.C. 103(a).

6.   Claim 1-14, 16-27, 29-42, and 44-57 are rejected under 35 U.S.C. 103(a) as

being unpatentable over Hensley (hereinafter "Hensley") (U.S. Patent Application

Publication Number 2004/0133790) in view of Maurer III et al. (hereinafter "Maurer")

(U.S. Patent Application Publication Number 2003/0065780).

      As per claim 1, Hensley is directed to a method and system for exchanging a first

sub-hierarchy of at least two sub-hierarchies of a hierarchical file system (HFS)

(Paragraph 0018 and Figure 2) with a second sub-hierarchy of the at least two sub-

hierarchies (Paragraph 0018 "a protected, hidden, emergency boot directory containing

a back-up copy of a computer operating system" and Paragraph 0022), the HFS being

accessible by at least one processor (Paragraph 0017-0018) and having one root

directory that is a parentless directory (Paragraph 0022) and teaches the limitations:

      "providing for the first sub-hierarchy to include a first root directory stored in a first

location occupied by the root directory of the HFS and a first plurality of files configured

to branch from the first root directory" (Figure 4: *Duplicate Primary Operating System

Files;* and Paragraph 0022, i.e., *each of the original operating system files*) and

"providing for the second sub-hierarchy to include a second root directory stored in a second location" (*new emergency boot directory hierarchy*) "of the HFS that is not occupied by the root directory of the HFS and a second plurality of files configured to branch" (Paragraph 0022, i.e., *However, the present invention is not limited to this configuration. The emergency boot directory could be located on the same hard disk, within a different, non-hidden partition. Alternatively, the emergency boot directory could be located on a different disk than the primary operating system.*) therefrom.

Hensley does not explicitly teach the limitation:

"providing for relocation of the second root directory from the second location to the first location which is occupied by the root directory of the HFS" and "without copying content of the first or second plurality of files".

Maurer teaches the limitation:

"providing for relocation of the second root directory from the second location to the first location which is occupied by the root directory of the HFS" (Paragraph 0112, i.e., *In the case where the first logical unit is no longer accessible, such as due to disk failure, the storage array can provide access to the copy of the first logical unit by the client by swapping to the logical unit accessed by the host. In one embodiment, the client and/or client application is not aware that the first logical unit, e.g., original or source, logical unit is no longer being accessed. If desired, a **restore** can be performed from the copy to the first logical unit and application access to the first logical can be provided after mirror synchronization for the restore is complete.*) and

"without copying content of the first or second plurality of files" (Paragraph 0112, i.e., *In the case where the first logical unit is no longer accessible, such as due to disk failure, the storage array can provide access to the copy of the first logical unit by the client **by swapping to the logical unit** accessed by the host. In one embodiment, the client and/or client application is not aware that the first logical unit, e.g., original or source, logical unit is no longer being accessed. If desired, a **restore** can be performed from the copy to the first logical unit and application access to the first logical can be provided after mirror synchronization for the restore is complete.*"). Particularly note that Maurer III is teaching swapping logical pointers to files and folders.

Maurer teaches a method for a data storage system having data restore by swapping logical units, wherein a second root directory is relocated (restored to) to the first location (Maurer, Paragraph 0112).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the feature of relocating a sub-hierarchy or unit to the first location as taught by Maurer III et al. with the method and system of Hensley et al. so that the combined method and system would provide for relocation of the second root directory to the first location. One would have been motivated to do so in order to enable to extraction of such logical information in a straight-forward non-complex and fast manner so that a surrogate computer could work with replicated copies in substantially the same manner as the original source computer that had operated with standard data (Maurer Paragraph 0010).

As per claim 2, Hensley teaches the limitation:

"further comprising the step of providing for configuration of the second plurality of files to branch from the second root directory including while the second root directory is located in the first location" (Paragraph 0025-0026 and Paragraph 0030, i.e., *with references to the new emergency boot directory*).

As per claim 3, Hensley in view of Maurer teaches the limitation:

"further comprising the step of providing for relocation of the first root directory from the first location which is occupied by the root directory of the HFS to the second location (Hensley Paragraph 0025-0026 and Maurer Paragraph 0112. i.e. *swapping the logical unit*.) Note that Paragraph 0055 of Maurer states that *Mirrors can be "synchronized" in either direction* (i.e., from the BCV to the standard or visa versa).

As per claim 4, Hensley teaches the limitation:

"further comprising the step of providing for configuration of the first plurality of files to branch from the first root directory including while the first root directory is located in the second location" (Paragraph 0025-0026 and Paragraph 0030).

As per claim 5, Hensley teaches the limitation:

"wherein the first and second sub-hierarchies are mutually exclusive" (Hensley, Paragraph 0022).

As per claim 6, Hensley teaches the limitation:

" wherein the second location is not occupied by any element of the first sub-hierarchy" (Paragraph 0022).

As per claim 7, Hensley in view of Maurer teaches the limitation:

"wherein the providing for relocation step is performed during startup of an operating system executing on the at least one processor, and during execution of the operating system (Hensley, Paragraph 0025 and 0023 of Hensley in view of Paragraph 0112 of Maurer).

As per claim 8, Hensley teaches the limitation:

"further comprising the step of providing for storage of first and second operating systems executable on the at least one processor in the respective first and second sub-hierarchies" (Paragraph 0022).

As per claim 9, Hensley in view of Maurer teaches the limitation:

"further comprising the step of providing for a replacement of the first sub-hierarchy with the second sub-hierarchy" (Hensley, Paragraph 0022, 0023, 0025, and 0026, and Maurer Paragraph 0112).

As per claim 10, Hensley in view of Maurer teaches the limitation:

"further comprising the step of providing for an exchange of the first and second sub-hierarchies" (Hensley Paragraph 0023 and Paragraph 0025-0027 in view of Maurer Paragraph 0112).

As per claim 11, Hensley teaches the limitation:

"further comprising the step of preventing unauthorized access by an operating system executed on the at least one processor to the HFS other than to the sub-hierarchy of the at least two sub-hierarchies having its root directory located in the first location before and after an exchange" (Paragraph 0028).

As per claim 12, Hensley teaches the limitation:

"further comprising the step of providing for configuration of the second plurality of files to branch from the first root directory and the first plurality of files to branch from the second root directory" (Hensley, Paragraph 0025-0026 and Paragraph 0030).

As per claim 13, Hensley in view of Maurer teaches the limitation:

"providing for reconfiguration of one or more pointers pointing between the second root directory and a parent directory of the second root directory to point between the first root directory and the parent directory of the second root directory" (Hensley, Paragraph 0023, 0025-0027, and 0029);

"providing for configuration of the second root directory to conform with configuration of the root directory of the HFS" (Hensley, Paragraph 0023, 0025-0027, and 0029); and

"providing for an replacement of contents and associated data of the first root directory and the second root directory" (Hensley, Paragraph 0023, 0025-0027, and 0029, in view of Maurer, Paragraph 0112).

As per claim 14, Hensley teaches the limitation:

"wherein the HFS resides upon a storage medium selected from the group consisting of physical and virtual storage mediums" (Paragraph 0022).

As per claim 16, Hensley in view of Maurer teaches the limitations;

"further comprising the step of providing for another exchange of the first and second sub-hierarchies with the effect of returning the first and second sub-hierarchies to their original locations" (Hensley Paragraph 0020, i.e. *if the enumeration does not reference the emergency boot directory...*, and Paragraph 0055 of Maurer, i.e. *Mirrors can be "synchronized" in either direction* (i.e., from the BCV to the standard or visa versa)).

As per claim 17, Hensley in view of Maurer teaches the limitation:

"wherein the providing for the exchange step is performed without copying contents of the first and second plurality of files" (Hensley, Paragraph 0023, and Maurer, Paragraph 0112 and Paragraph 0055).

As per claim 18, Hensley teaches the limitation:

"further comprising the step of providing at least one special file" (Hensley, Paragraph 0018, i.e. *file system filter*) "accessible via the root directory of the HFS and via one of the first and second root directories when stored in the first location" (Paragraph 0018).

As per claim 19, Hensley in view of Maurer teaches the limitation:

"wherein the content of the first sub-hierarchy includes an upgrade of contents of the second sub-hierarchy" (Hensley, Paragraph 0030, and Maurer, Paragraph 0112).

As per claim 20, Hensley in view of Maurer teaches the limitation:

"wherein the exchange is reversible" (Hensley, Paragraph 0019-0020, 0023-0025, and 0030, Maurer, Paragraph 0115 and Paragraph 0055).

As per claim 21, Hensley teaches the limitation:

"wherein the first and second sub-hierarchies provide different user environments" (Hensley, Paragraph 0028). The system and method taught by Hensley accommodates multi-user environments.

As per claim 22, Hensley in view of Maurer teaches the limitation:

"wherein content of the second sub-hierarchy is a backup copy of contents of the first sub-hierarchy" (Hensley, Paragraph 0015 and Maurer Paragraph 0112).

Claim 55 is rejected on the same basis as claim 1. Note that the method of
Hensley in view of Maurer III et al. teaches a method for a data storage system having
data restore by swapping logical units, wherein a second root directory is relocated
(restored to) to the first location (Maurer III et al., Paragraph 0112, i.e. *In the case where
the first logical unit is no longer accessible, such as due to disk failure, the storage array
can provide access to the copy of the first logical unit by the client by **swapping** to the
logical unit accessed by the host. In one embodiment, the client and/or client application
is not aware that the first logical unit, e.g., original or source, logical unit is no longer
being accessed. If desired, a **restore** can be performed from the copy to the first logical
unit and application access to the first logical can be provided after mirror
synchronization for the restore is complete.*) As such it is inherent in the method of
Hensley in view of Maurer III et al. that any feature exclusively associated with the root
directory of the HFS would associate with the second root directory during the *swapping
operation* and disassociate said feature from the first root directory.

Claim 56 is rejected on the same basis as claim 1. In the method and system of
Hensley in view of Maurer III et al., the first and second sub-hierarchies could be mirrors
and according "overlapping".

Claim 57 is rejected on the same basis as claim 1. Official note is take that it is
notoriously well known in the art that any root director is a parentless directory. In the

method and system of Hensley in view of Maurer III et al., any number of sub-

hierarchies could be created for alternate rebooting or mirroring of volumes.

Claim 19 is rejected on the same basis as claim 21.

Claim 23 is rejected on the same basis as claim 2 (Claim 2 incorporates all

limitations of claim 1 and claim 2).

Claim 24 is rejected on the same basis as claim 6.

Claim 25 is rejected on the same basis as claim 3.

Claim 26 is rejected on the same basis as claim 5.

Claim 27 is rejected on the same basis as claim 14.

Claim 30 is rejected on the same basis as claim 2.

Claim 31 is rejected on the same basis as claim 3.

Claim 32 is rejected on the same basis as claim 4

Claim 33 is rejected on the same basis as claim 5.

Claim 34 is rejected on the same basis as claim 6.

Claim 35 is rejected on the same basis as claim 7.

Claim 36 is rejected on the same basis as claim 8.

Claim 37 is rejected on the same basis as claim 9.

Claim 38 is rejected on the same basis as claim 10.

Claim 39 is rejected on the same basis as claim 11.

Claim 40 is rejected on the same basis as claim 12.

Claim 41 is rejected on the same basis as claim 13.

Claim 42 is rejected on the same basis as claim 14.

Claim 44 is rejected on the same basis as claim 16.

Claim 45 is rejected on the same basis as claim 17.

Claim 46 is rejected on the same basis as claim 18.

Claim 47 is rejected on the same basis as claim 19.

Claim 48 is rejected on the same basis as claim 20.

Claim 49 is rejected on the same basis as claim 21.

Claim 50 is rejected on the same basis as claim 22.

Claim 51 is rejected on the same basis as claim 4.

Claim 52 is rejected on the same basis as claim 10.

Claim 53 is rejected on the same basis as claim 4.

Claim 54 is rejected on the same basis as claim 10.

7.. Claim 15 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hensley in view of Maurer and further in view of Mansur et al. (U.S. Patent Application Publication Number 2002/0095548

Referring to claim 15, Hensley in view of Maurer is directed to the system and method of claim 1 but does not expressly disclose the limitation: "providing a backup directory branching from the root directory of the HFS and not included in the at least two sub-hierarchies".

However, Mansur teaches the limitation:

""providing a backup directory branching from the root directory of the HFS and not included in the at least two sub-hierarchies" (Paragraph 0045). Mansur teaches a

system and method for storage system controller configuration wherein a backup

directory, containing more directories inside, is used (Mansur et al., Paragraph 0045).

A the time the invention was made, it would have been obvious to a person of

ordinary skill in the art to add the feature of employing backup directories as taught by

Mansur et al. to the system and method taught by Hensley in view of Maurer III et al. as

applied to claim 1 so that the resultant system and method would provide a backup

directory branching from the root directory of the HFS and not included in the at least

two sub-hierarchies, from which branch respective sub-hierarchies of the at least two

sub-hierarchies other than the sub-hierarchy of the at least two sub-hierarchies having

its root directory located in the first location. One would have been motivated to do so in

order to simply "to restore the directory in the event the primary directory location or

primary lock becomes corrupted" (Mansur et al., Paragraph 0045).

Claim 43 is rejected on the same basis as claim 15.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Dennis Myint whose telephone number is (571) 272-

5629. The examiner can normally be reached on 8:30AM-5:30PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, John Breene can be reached on (571) 272-4107. The fax phone number for

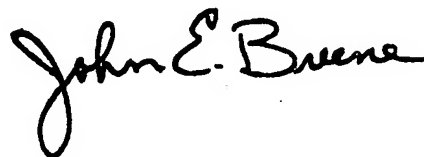the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dennis Myint
Examiner
AU-2162

JOHN BREENE
SUPERVISORY PATENT EXAMINE..
TECHNOLOGY CENTER 2100